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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.       | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------------|------------------|
| 10/601,715  | 06/23/2003  | Wit Cezary Bushko    | 121839-1/YOD<br>GERD:0058 | 8721             |
| 7590 08/24/2005   |             |                      | EXAMINER                  |                  |
| Patrick S. Yoder<br>FLETCHER YODER<br>P.O. Box 692289<br>Houston, TX 77269-2289 |             |                      | KEANEY, ELIZABETH MARIE   |                  |
|   |             |                      | ART UNIT                  | PAPER NUMBER     |
|   |             |                      | 2882                      |                  |

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/601,715

**Applicant(s)**BUSHKO ET AL. **Examiner**

Elizabeth Keaney

**Art Unit**

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 13-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 13-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 232 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

The Remarks and Amendments filed 13 June 2005 have been entered.

#### ***Response to Arguments***

Applicant's arguments filed 13 June 2005 have been fully considered but they are not persuasive.

Applicant amended claim 6 in attempts to overcome the objection. However, the new limitation does not overcome the objection of record. Please note the discussion by the Examiner as shown below.

Applicant argues that while Klotz et al. (US Patent 5,651,044; hereinafter Klotz) discloses a collision array, Klotz fails to teach the collision array disposed on the face of the detector.

The Examiner respectfully disagrees. Klotz discloses the capacitive proximity detection system (collision array) disposed on the collar assembly (column 4, lines 53-56). Klotz further discloses the collar assembly disposed on the end of the detector (column 3, line 38-39). Therefore, Klotz discloses the collision array disposed on the face of the detector. Accordingly, the previous rejection is maintained.

The Applicant further argues that Klotz fails to disclose a plurality of sensors disposed on a substrate substantially in a plane, specifically that Klotz discloses the sensors to be conformal with the curved surface structure of the collar assembly.

The Examiner respectfully disagrees. Klotz discloses that the sensors are conformal with the shape of the curved surface (column 4, line 55), meaning that the sensors are deposited on the substrate plane in a shape of an arc not that the sensors are deposited having a curvature away from the substrate. Further, the use of the term "substantially" does not specifically require the sensors to be in a plane. Therefore, Klotz discloses the plurality of sensors disposed on the substrate substantially in a plane. Accordingly, the previous rejection is maintained.

### ***Claim Objections***

Claim 6 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The limitation "further disposed on a non-detecting face of the detector" found in claim 6 negates the limitation "disposed on the detecting face of the detector" found in claim 1. The Examiner could interpret this claim two different ways. The first interpretation being that a second collision avoidance array is disposed on the non-detecting face of the detector. Thereby having a system including a first collision avoidance array on the detecting face and a second collision avoidance array on the non-detecting face. Or the second

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interpretation including only one collision avoidance array which is disposed only on the non-detecting side of the detector. Should this be the case, then claim 6 would have to be written in independent form so as to not negate the limitation of the collision array "disposed on the detecting face of the detector".

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5,7,9,10,12-24,26,27,29,30,32 and 33 are rejected under 35

U.S.C. 102(b) as being anticipated by Klotz, Jr. et al. (US Patent 5,651,044; hereinafter Klotz).

Re claim 1: Klotz discloses, in figures 1-3c, an imaging system for sensing a presence of objects near the imaging system, the system comprising:

- a source (120) configured for emitting a stream of radiation;
- a detector (125) configured for detecting a portion of radiation and impacting a detecting face of the detector; and
- a collision avoidance array (300) disposed on the detecting face of the detector and configured for sensing objects (column 3, lines 49-51).

Re claim 2: Klotz discloses the collision avoidance array to further include:

- a plurality of plates (300) disposed on the array substantially in a plane to form an array of capacitors (column 4, lines 37-38), each plate configured to sense objects at a corresponding critical distance and configured to generate a corresponding electrical signal (column 3, lines 49-51);
- a plurality of conductors extending substantially in the plane and coupled to a multiplexer (220), each conductor being coupled to a corresponding one of the plurality of plates and configured for conducting the electrical signal to a sensing circuit via the multiplexer (column 5, lines 27-28).

Re claim 3: Klotz discloses the multiplexer being configured to selectively couple the plurality of plates to the sensing circuit (column 5, lines 27-30).

Re claims 4 and 5: Klotz discloses at least one shielding conductor extending substantially in the plan and coupled to ground (400), the shielding conductor configured for providing shielding to at least one of the plurality of conductors (column 6, lines 49-51).

Re claim 7: Klotz discloses a motor controlling a motion of a gantry, wherein the motor is configured to stop the motion of the gantry when the object is detected (column 3, lines 50-55).

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Re claim 9: Klotz discloses the analysis module being configured to determine a distance of the object from the collision avoidance array (column 3, lines 55-59).

Re claim 10: Klotz discloses, in figure 1-3c and throughout the disclosure, a collision avoidance system for avoiding collision of a system component with an object, the system comprising:

- a collision avoidance array (300) disposed on a face of the system component, the collision avoidance array comprising a plurality of plates configured to detect a presence of objects and generate a corresponding electrical signal (column 3, lines 49-51);
  - wherein the system component is an x-ray detector (column 3, line 11)
- a multiplexer (220) coupled to the collision avoidance array, the multiplexer configured to selectively activate the plurality of plates (column 5, lines 27-30); and
- a sensing circuit (250) configured to sense the electrical signal and to generate an output signal representative of the presence of the object (column 5, lines 35-38).

Re claim 12: Klotz discloses the system component being an x-ray detector (column 3, lines 49-50).

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Re claim 13: Klotz discloses, in figures 1-3c and throughout the disclosure, the collision avoidance array (300) being disposed on the detecting face of the x-ray detector, the detecting face configured for receiving radiation.

Re claim 14: Klotz discloses the collision avoidance array being configured to detect the object within a critical distance from the system component (column 3, lines 55-59).

Re claim 15: Klotz discloses, in figures 1-3c and throughout the disclosure, a detection system for detecting a presence of an object, the detection system comprising:

- a plurality of sensors (300) disposed on a substrate substantially in a plane, each of the plurality of sensors configured for detecting the presence of the object and generating a corresponding electrical signal (column 3, lines 55-59);
- a plurality of conductors extending substantially in the plane and coupled to a corresponding one of the plurality of sensors, each conductor configured to transmit the electrical signal when the object is detected (column 5, lines 27-28).

Re claim 16: Klotz discloses each of the plurality of sensors being configured for detecting an object at corresponding critical distances (column 3, lines 55-59).



Re claim 17: Klotz discloses the critical distance for each one of the plurality of sensors being determined by a corresponding dimension of the sensor (column 5, lines 45-50).

Re claim 18: Klotz discloses the critical distance being constant for each one of the plurality of sensors (column 5, lines 45-47).

Re claim 19: Klotz discloses, in figure 1 and throughout the disclosure, the substrate comprising an insulator (130; column 4, line 48).

Re claim 20: Klotz discloses each of the plurality of sensors comprises a corresponding capacitor sensor (column 4, lines 37-40).

Re claim 21: Klotz discloses at least one of the plurality of conductors being coupled to ground to provide shielding for the plurality of conductors (column 6, lines 49-51).

Re claim 22: Klotz discloses at least one shielding conductor to provide shielding for at least one of the plurality of conductors (column 6, line 50).

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Re claims 23 and 29: Klotz discloses, in figures 1-3c and throughout the disclosure, a method for avoiding collision of a system component with an object, the method comprising:

- detecting a presences of the object within a critical distance from a face of the system component via a collision avoidance array disposed on a detecting face of the system component (column 3, line 38-39) and generating a corresponding electrical signal (column 3, lines 49-51);
- generating an output signal representative of the presence of the object (column 5, lines 27-28).

The Examiner notes the system components of claim 29 merely require the operation of the method included in claim 23 and are anticipated for the same reasons.

Re claims 24 and 30: Klotz discloses controlling the system component to prevent collision with the object (column 3, lines 50-55).

Re claims 26 and 32: Klotz discloses the system component being an x-ray detector (column 3, lines 49-50).

Re claims 27 and 33: Klotz discloses in figures 1-3c and throughout the disclosure, the detecting comprises detecting from a detecting face of the detector

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(125), wherein the detecting face is configured for receiving radiation from an x-ray source.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klotz as applied to claims 1 and 23 above, and further in view of Watanabe et al. (US Patent 6,412,978; hereinafter Watanabe).

Klotz shows all the limitations as shown above.

However, Klotz fails to teach or fairly suggest the collision avoidance array disposed on a non-detecting face of the detector.

Watanabe discloses, in figures 2 and 3, a collision avoidance detector (58) disposed on the non-detecting face of the detector.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to place the collision avoidance sensor on the non-detecting face of the detector disclosed by Klotz because it enables the system to further avoid a collision of mechanical parts within the system itself.

Claims 8,11,25 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klotz as applied to claims 1,10,23 and 29 above, and further in view of Biegelsen et al. (US Patent 6,476,376; hereinafter Biegelsen).

Klotz shows all the limitations as shown above.

However, Klotz fails to teach or fairly suggest means for determining the size of the object detected by the collision sensor.

Biegelsen discloses a proximity sensor which is further able to determine the size of the object detected (column 1, line 32).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the ability to determine the size of the object detected within the system disclosed by Klotz because it would allow for determining the proper amount of movement needed to avoid collision, thereby making the movements more precise.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Keaney whose telephone number is (571)272-2489. The examiner can normally be reached on Monday, Tuesday, Thursday, Friday 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571)272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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**PRIMARY EXAMINER**